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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,962	09/12/2006	Vijitha Weerasinghe	P08863US00/DEJ	3350
881 7590 12/17/2009 STITES & HARBISON PLLC 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314			EXAMINER HOWELL, DANIEL W	
			ART UNIT 3726	PAPER NUMBER
			MAIL DATE 12/17/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/569,962

Applicant(s)

WEERASINGHE, VIJITHA

Examiner

Daniel W. Howell

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (FTO/SB/DP)
Paper No(s)/Mail Date 9-21-06, 2-28-06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

1. It will be noted that a couple of the claims below have been rejected with the same base reference under both 102 and 103. In these situations, while it was believed the base reference was sufficient to meet the claimed limitation, a secondary reference that was going to be applied against other claims happened to distinctly show the subject matter of those duplicated claims, so the secondary reference was applied as a backup.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-5, 7-14, 19-22, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 07-60521. As seen from figures 1A and 2, the rake face adjacent the cutting edge is coated, and the two clearance surfaces/back faces 4 are not coated. Regarding claim 11 note that the land located circumferentially behind the margin is not coated either. Regarding claim 12, note that figure 3 shows that the coating might only extend for a certain axial distance, leaving the rest of the flute uncoated. The diamond coating is considered to be wear resistant, and the abstract states that the coating may be about 10 μm . Claim 19 is effectively a product by process limitation, and the device of figures 1A and 2 appears just as it would if the coating were to be applied by PVD. The same is true of claim 20, which discusses masking as a product by process manner.

4. Claims 1, 3-5, 7-11, 13-14, 19-22, 25, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 57-184616. As seen from figures 4, 5, and 6, certain of the drill bit surfaces are coated, while others are not. The layer has a thickness of 0.3 to 20 μm . Claim 19 is

effectively a product by process limitation, and the device of figures 1A and 2 appears just as it would if the coating were to be applied by PVD. The same is true of claim 20, which discusses masking as a product by process manner.

5. Claims 1-11, 13-15, 19, 21-22, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-52119. The bit shown in figures 1a, 1b, is coated with material such as TiN, TiCN, and TiAlN on the cutting edge and groove/flute. As stated by the Abstract, coating is done by PVD.

6. Claims 1-5, 7-10, 14-15, 19-24, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 56-3117. As seen from figures 6a, 6b, the back face/clearance does not have a coating, but the cutting edge, rake face, land, and margin do. Considering that back face 5 is the "non-cutting surface," then figure 6a meets claim 2, and figure 6b shows a plurality of non-cutting surfaces (primary clearance surface, secondary clearance surface, for each of the two cutting edges = four non-cutting surfaces). Note the compositions listed in the Abstract. Claim 19 is effectively a product by process limitation, and the device of figures 6a, 6b, appears just as it would if the coating were to be applied by PVD. The same is true of claim 20, but the Abstract nevertheless even discusses a protecting plate in treatment, which constitutes "masking."

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '117. The layer of the JP '117 drill is between 0.5 μm and 20 μm . It is considered to have been

obvious to have conducted suitable experimentation to determine what range of coating thickness works best for a particular hole size and material being drilled, and to have provided the ranges set forth in claims 17-18 as appropriate for the conditions.

9. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '521. The layer of the JP '521 drill is about 10 μm . It is considered to have been obvious to have conducted suitable experimentation to determine what range of coating thickness works best for a particular hole size and material being drilled, and to have provided the ranges set forth in claims 17-18 as appropriate for the conditions.

10. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '117 in view of Sekiguchi et al (6315504). While the Abstract of the JP reference does appear to show the claimed coatings, Sekiguchi et al shows a drill body made of high speed steel or a cemented carbide coated with wear resistant coatings such as TiN, TiCN, or TiAlN. See column 2, lines 5-13 and lines 55-62. It is considered to have been obvious to one skilled in the art to have made the bit of JP '117 of HSS and coated it with the above coatings as taught by Sekiguchi et al as this is applying a known technique/composition to a known drilling device ready for improvement to yield predictable results of drilling a satisfactory hole in a workpiece and reducing wear and/or chippings on the major cutting edges.

11. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over either of JP '521 or JP '117 in view of Osawa et al (6923602). JP '521 appears to disclose CVD in the Abstract, and JP '117 does not appear to discuss the method of making in the Abstract. Osawa et al shows a bit having a coating such as TiAlN, TiCN, or TiN, with the coating being applied by methods such as PVD (physical vapor deposition), arc ion plating, sputtering, or plasma CVD. In view of

this teaching of Osawa et al, it is considered to have been obvious to have applied the coatings on JP '521 and JP '117 by physical vapor deposition (PVD) as this is a widely known and conventional method to apply such a coating on a drill bit.

12. Claims 3 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of JP '521 or JP '117 in view of Kunimori et al (4728231). Kunomri et al shows a body 4 made of high speed steel (HSS), a tip 9 made of cemented carbide that is attached to the body, and a coating such as TiN or TiCN. As stated at column 4, lines 6-13, only the tip is coated. Looking at figure 4 for a moment, this would mean that the cutting edge 10, the rake face on the tip 9, and the back face/clearance face on the tip is coated. However, since the body 4 has not been coated, this would mean that the rest of the back face/clearance face located on body 4 is not coated. Regarding claims 3 and 25, Kunimori et al discloses that it is known to coat "at least part" of this back face as per claim 25, and to coat "at least part or some" of the non-cutting surface/back face as per claim 3. In view of this teaching of Kunimori et al, it is considered to have partially coated the back face/non-cutting surfaces of either of JP '521 or JP '117 in order to coat only the regions of the drill that are more likely to suffer from wear.

13. It is suggested that Applicant review all of the art of record, as other rejections could have been made.

14. Any inquiry concerning the content of this communication from the examiner should be directed to Daniel Howell, whose telephone number is 571-272-4478. The examiner's office hours are typically about 10 am until 6:30 pm, Monday through Friday. The examiner's supervisor, David Bryant, may be reached at 571-272-4526.

Art Unit: 3726

In order to reduce pendency and avoid potential delays, Group 3720 is encouraging FAXing of responses to Office actions directly into the Group at FAX number to 571-273-8300. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a USPTO deposit account. Please identify Examiner Daniel Howell of Art Unit 3726 at the top of your cover sheet.

/Daniel W. Howell/

Primary Examiner, Art Unit 3726